Unit 9 Lesson 6 Homework Set

1. An egg distributor determines that the probability that any individual egg has a crack is 0.14 .
   a. Write the binomial probability formula to determine the probability that exactly x eggs of n eggs are cracked.
   b. Write the binomial probability formula to determine the probability that exactly 2 eggs in a one-dozen carton are cracked. Do not evaluate.

2. Thomas Zellner works as a waiter at Outback Steakhouse. He has learned from experience that 80% of customers who dine alone leave a tip. If Thomas waits on 6 customers dining alone, determine the probability that exactly 4 of them leave a tip.

3. Records from a specific bank show that 70% of car loan applications are approved. If eight car loan applications from this bank are selected at random, determine the probability that exactly five of the applications are approved.

4. When treated with the antibiotic resonocyllin, 92% of all dolphins are cured of a particular bacterial infection. If six dolphins with the particular bacterial infection are treated with resonocyllin, determine the probability that exactly four are cured.

5. The probability that a specific brand of water heater produces the water temperature it is set to produce is $\frac{4}{5}$. Determine the probability that if five of these water heaters are selected at random, exactly four of them will produce the water temperature they are set to produce.

6. Edward Dunn has to take a five-question multiple-choice quiz in his sociology class. Each question has four choices for answers, of which only one is correct. Assuming that Edward guesses on all five questions, what is the probability that he will answer…
   a. All five questions correctly?
   b. Exactly three questions correctly?
   c. At least three questions correctly?